

Nearly 30 per cent of the fruits have been observed to be infected.

TABLE 2

OBSERVATIONS ON GROWTH, FLOWERING AND FRUITING OF *Balanites*

Height (m)	Basal Stem Girth* (cm)	Observations	
		Flowering	Fruiting
0.9	7.5	Less	..
1.0	10.0	Less	..
1.8	9.5	Good	?
2.3	13.8	Profuse	..
2.75	20.0	..	Less
2.5	20.0	..	Less
2.8	27.5	..	Less
3.0	33.5	..	Good
4.5	40.0	..	Good
5.5	45.0	..	Profuse
6.0	48.0	..	Profuse

(* Girth of stem measured 10 cm above ground)

The fruits mature during November-December, while there is another flush of

less profuse flowering during October-November. These flowers are either completely shed or in few cases, in certain localities, develop into small shrunken fruits which prematurely fall off. Some plants never flower at all during November.

The information on the age of flowering and fruiting in *Balanites* is inadequate. It is, however, generally believed that the tree starts flowering at the age of five years. The youngest tree which was observed to flower was 90 cm high with a basal stem girth of 7.5 cm. But, fruit setting was observed to start at an older age and the minimum height of the tree with fruits was about 250 cm with a basal stem girth of 20 cm (Table 2). Flower production and fruit setting was found to increase with age of the tree. Trees with more than 40 cm girth were observed to fruit profusely.

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REFERENCES

BHANDARI, M. M. (1978): Flora of the Indian desert, Jodhpur.
 BLATTER, E. AND HALLBERG, F. (1918): Flora of the Indian desert. *J. Bombay nat. Hist. Soc.* 26: 232.
 COOKE, T. (1903): The Flora of the Presidency of Bombay (Vol. I). London.
 DUTHIE: J. F. (1960): Flora of the Upper Gangetic Plains (Vol. I), Calcutta.
 HAINES, H. H. (1961): Botany of Bihar and Orissa (Vol. I), Calcutta.
 PARKER, R. N. (1973): A forest flora for the Punjab with Hazara and Delhi, Dehra Dun.
 POST, G. E. (1932): Flora of Syria, Palestine and Sinai (Vol. I), Beirut.

27. *PRIMULA MALACOIDES* FRANCH.—NATURALISED IN GARHWAL HIMALAYA

Primulas are well known for their attractive flowers and have always fascinated Horticulturists. As a result, many of the beautiful species known from wild sources are now

coveted ornamentals in green houses. Quite a number of such species are often naturalised after escape and flourish in wild habitats. *Primula malacoides* Franch. is one such species

which has now established itself in Garhwal Himalaya. This species was collected near the water pump house at Lansdowne in Dist. Garhwal growing in moist shady place (J. N. Vohra 10679).

In India *P. malacoides* is known as a garden plant and there are collections from Darjeeling Botanic Garden at DD Herbarium. It's running wild in the N.W. Himalaya hill station has not been reported so far. A short description of the species is given below for locating this handsome *Primula* in other hill stations also.

Primula malacoides Franch. in Bull. Soc. Bot. France 33 : 64.1886. Slender herb 20-30 cm high. Leaves cordate, broadly lobed;

BOTANICAL SURVEY OF INDIA,
NORTHERN CIRCLE,
DEHRA DUN,
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lobes incise-dentate, petiole exceeding the leaf-blade. Flowers in many flowered, 2-6 superimposed umbels. Calyx white farinose, accrescent in fruit. Corolla bluish; limb obcordately lobed, upto 1.3 cm across. Capsule globose, included.

The specimen is deposited in the BSD herbarium under the above collection number.

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28. NOTE ON AMBEMOHOR PAT (*PANDANUS AMARYLLIFOLIUS* ROXB.) FROM WESTERN INDIA

(With a photograph)

Along the coastal districts of Western India, pieces of grass like leaves are often used in cooking to give pleasant flavour to rice. According to local inhabitants, such method of cooking rice has been practised from ancient times. The flavour is very similar to that of the choice variety of *Ambemohor rice* popular in hilly tracts of Maharashtra and hence the local name of the plant is *ambemohor-pat*. It is also known in Ratnagiri and neighbouring districts of Maharashtra as *annapurna-pat*, a name, obviously given after the goddess of food *Annapurna*.

Lot of ambiguity exists about the correct identity of the plant. The plant multiplies by producing suckers and does not flower in spite of various types of environmental conditions provided. Nobody has witnessed or recorded flowering of this particular plant. Fusiform

stilt roots at the base and pleat nature of leaves certainly show its affinity with *Pandanus*.

William Roxburgh named this particular plant as *Pandanus amaryllifolius* and published a short description in the flora 'Hortus Bengalensis' in 1814. He has also mentioned that the plant was introduced from Amboyna (now Indonesia) into the Botanical Garden of Calcutta in the year 1798. Roxburgh was quite confident about the likeness of the relevant plant with the genus *Pandanus* which shows fusiform roots arising from stem and larger branches, descending towards ground. He did not, however, give any information about the flowering of the plant and its scented leaves used for giving fragrance to cooked food. Later on a number of botanists working on the flora of South-east Asia like Voigt (1828), Hasskel (1842, 1844), Rumphious (1844), Merrill